REMARKS

Applicant respectfully requests that the above-identified patent application be reexamined and reconsidered.

I. Introduction

Claims 1-16 are pending in the present application. In a February 11, 2004, Office Action (hereinafter "Office Action"), Claims 1 and 2 were rejected under 35 U.S.C. § 103(a) as unpatentable in view of the teachings of U.S. Patent No. 5,831,609 to London et al. (hereinafter "London") in view of the teachings of U.S. Patent No. 6,182,276 B1 to Brawn et al. (hereinafter "Brawn"). Claims 3-16 were also rejected under 35 U.S.C. § 103(a) as unpatentable over London in view of Brawn and further in view of the teachings of U.S. Patent No. 6,573,904 B1 to Chun et al. (hereinafter "Chun"). While applicant strongly believes that the previously presented claims were clearly allowable in view of the cited and applied references, in order to advance the prosecution of this application, a few language clarifications have been made in order to make the claim language better point out and distinctly claim the subject matter that applicant regards as the invention. Pursuant to 37 C.F.R. § 1.111 and for the reasons set forth below, applicant respectfully requests reconsideration and allowance of this application.

For the following reasons, applicant respectfully submits that Claims 1 and 2 are not obvious over London in view of Brawn. Further, applicant respectfully submits that Claims 3-16 are not obvious over London in view of Brawn and further in view of Chun. As will be explained in greater detail below, the cited and applied references, alone or in combination, fail to teach or suggest a system and method for adapting and hosting legacy user interface controls in a new window manager. Prior to discussing more detailed reasons for applicant's belief that all the claims of the present invention are allowable, descriptions of the present invention and the cited references are presented. The following descriptions of applicant's invention and the cited references are not provided to define the scope or interpretation of any of the claims of this

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application. Instead, these descriptions are provided to help the United States Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

A. Summary of the Present Invention

The present invention is directed to a method and apparatus for adapting and hosting legacy user interface controls in a new window manager. Aspects of the invention may be embodied in a computer operating system capable of providing a graphical user interface. Generally described, the present invention provides a bridge between a hosted legacy user interface control and a legacy window manager. The bridge intercepts and filters messages intended for the hosted user interface control to determine if they should be passed to the new window manager. If a message is to be passed in one exemplary embodiment of the invention, the message is forwarded to the root Visual Gadget in the new window manager. The message is processed and routed down the window tree to an adapter control for hosting the legacy user interface control. The adapter control processes the message and routes the message to any listener objects attached to the adapter.

The present invention exposes legacy user interface controls, such as window handles as native user interface controls to a new window manager. In order to expose legacy user interface controls as native interface controls in a new windows manager, routines of the present invention "hook" into the messaging infrastructure of the legacy window manager and intercept messages intended for the legacy user interface. The present invention supports the use of existing user interface controls in a new window manager without requiring source modification of the controls. The invention also allows existing controls to be identified as being "adapted," without requiring special handling.

B. U.S. Patent. No. 5,831,609 to London et al.

London is purportedly directed to translation software that provides remote access to an application program that is executing on a host machine in a native operating system. Generally

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described, London monitors messages between the application program and a graphical user interface running on the host machine. When the London translation software identifies a message that is "windows management" related, the software converts the message into a protocol that is recognizable by the remote machine. When a message is not "windows management" related, the London translation software passes the message on to the native operating system on the host machine without interference. The graphical user interface on the remote machine displays the graphical changes caused by the windows management events that occurred on the host machine.

Accordingly, London purportedly teaches a method that allows an application program executing on a host machine to display user interface information on the graphical user interface of a machine located at a remote location. More specifically, London teaches a method that allows user interface information generated by application programs written for "Windows®/NT" to be displayed remotely on a machine that supports the X-protocol.

C. U.S. Patent. No. 6,182,276 to Brawn et al.

Brawn is purportedly directed to a method for enabling legacy application programs to display text-based output on a graphical user interface that utilizes graphical objects. Generally described, Brawn teaches a method whereby application data of legacy programs is made available to software routines that reformat the data for presentation on a graphical user interface. Thus, modern computers that are graphically based are able to use the functionality provided by text-based legacy applications without requiring developers to rewrite source code.

D. U.S. Patent No. 6,573,904 to Chun et. al.

Chun is purportedly directed to a data processing system that updates display information located in a buffer. More specifically, Chun discloses updating information that defines how pixels will be displayed on a color buffer window. When an overlay window identifier is

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removed, the Chun processing system updates the buffer with information that defines the correct overlay window identifier.

II. The Claims Distinguished

A. Rejection of Claims 1-2, Under 35 U.S.C. § 103(a)

The Office Action rejected Claims 1 and 2 under 35 U.S.C. § 103(a) as being unpatentable over London in view of Brawn. The Office Action asserts that the combination of London and Brawn suggests each and every element of applicant's claims. Applicant respectfully disagrees. As described in more detail below, the cited references fail to disclose or suggest certain elements of independent Claim 1 and dependent Claim 2.

1. Claim 1

As amended, Claim 1 recites the following:

> 1. A method for hosting a windows-based legacy user interface object originally intended for use in a legacy window manager in a new window manager, comprising:
>
> providing a software bridge between said legacy window manager and said windows-based legacy user interface object;
>
> intercepting a message at said software bridge intended for said windows-based legacy user interface object;
>
> determining whether said message should be forwarded to said new window manager; and
>
> in response to determining that said message should be forwarded, forwarding said message to said windows-based legacy window manager.

As distinctly recited in Claim 1, applicant's invention provides a method for hosting a windows-based legacy user interface object originally intended for use in a legacy window manager. Developers of computer software rarely have the benefit of building software from scratch. Instead, most modern software projects must account for existing computer programs, sometimes referred to as legacy systems (i.e., previously developed computer programs). Applicant's method, as recited in Claim 1, is a software bridge between a legacy window

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manager and a windows-based legacy user interface object that adapts user interface controls so they may be used in a new window manager.

Conversely, London is directed to software that displays a graphical user interface on a remote machine that is executing on a host machine. The London system monitors messages between the native or host operating system and application programs for specific "windows management" messages. When a message that is "windows management" related is observed, the software converts the message into a protocol that is recognizable to the remote machine. When a message is not "windows management" related, the London translation software passes the message on to the native operating system without interference.

The Office Action asserts that London discloses a method for receiving a message at a software bridge intended for a windows-based legacy user interface object and refers to Figure 3, and Col. 4, lines 63-67, of London in support of that proposition. The referenced section of London discloses a system where "translation software monitors the commands that are relayed from the application program to the application program interface provided by "WINDOWS®/NT." London at Col. 4, lines 63-67. London goes on to state that "the translation software evaluates whether the command represented by the API call is windows management related. A command is "windows management related" when the result of the command alters the positioning of the application program's window (e.g., moving, resizing, stacking the application program's window)." London at Col. 4, line 66, through Col. 5, line 3. While London monitors commands that are windows management related, it does not intercept messages intended for a windows-based legacy user interface object as recited in Claim 1. The system disclosed in London only monitors commands that will affect the graphical output of an application program. When the graphical output of an application program changes, those changes are reproduced on the remote machine. Conversely, Claim 1 of the present invention recites "intercepting a message at said software bridge intended for said windows-based legacy user interface object." London does not disclose intercepting a message intended for a windows-

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based legacy user interface object. Instead, London discloses a system that directs windows management related commands to a remote machine so that the graphical output of the host machine may be reproduced.

Claim 1 recites a method for hosting a legacy user interface object originally intended for use in a legacy window manager in a new window manager. More specifically, the claimed method recites (1) receiving a message at a software bridge intended for said legacy user interface object; (2) determining whether said message should be forwarded to said new window manager; and (3) in response to determining that said message should be forwarded, forwarding said message to said ***legacy window manager***. The Office Action asserts that London discloses a method of forwarding a message to a legacy window manager in response to determining that said message should be forwarded and references Figure 3, and Col. 5, lines 5-39, of London in support of that proposition. London discloses a system that "can also pass the command to the ***native GUI system*** so that window management may be effectuated on a local native display." (Emphasis added.) London at Col. 5, lines 35-38. The Office Action equates a legacy window manager, recited in Claim 1 of the present invention, with a native GUI system referenced in London. However, a legacy window manager is not equivalent to a native GUI system. As described above, legacy systems, such as a legacy window manager, are previously developed computer programs that a developer integrates into a new computer program. Conversely, a native GUI system as defined in London is a set of graphical objects that would normally be displayed on a host or local machine that are displayed on a remote machine. Thus, London does not teach forwarding messages to a legacy window manager.

The Office Action admits that London does not specifically disclose hosting a legacy user interface in a new window manager. However, the Office Action asserts that Brawn discloses hosting a legacy user interface in a new window manager and references Col. 3, line 65, through Col. 4, line 9, of Brawn in support of that proposition. The Office Action then asserts that the

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combination of claim elements recited in Claim 1 would have been obvious to one of ordinary skill in the art. Applicant disagrees.

As amended, Claim 1 recites "providing a software bridge between said legacy window manager and said windows-based legacy user interface object." Applicant respectfully asserts that Brawn does not disclose hosting a windows-based legacy user interface object. Similar to the present invention, Brawn adapts a legacy user interface for use in a new interface. However, Brawn is limited to receiving and processing "presentation spaces from legacy host applications that are formatted for obsolete character-based terminals." Brawn at Col. 3, line 67, through Col. 4, line 2. Conversely, the present invention provides a software bridge between a legacy window manager and a "windows-based legacy user interface object." Hosting a legacy application that is based on a data stream of characters (i.e., strings) is not equivalent to hosting a legacy application that is based on graphical objects used in windows environments. Thus, Brawn does not disclose hosting a windows-based legacy user interface object in a new window manager.

For at least the above-mentioned reasons, applicant respectfully submits that the Office Action has not established a prima facie case for a Section 103(a) rejection of Claim 1 and respectfully request that the rejection of Claim 1 and the claims dependent (2-9) thereon be withdrawn and these claims allowed.

2. Claim 2

Since Claim 2 depends from Claim 1, the analysis applied to Claim 1 also applies to Claim 2. Therefore, applicant respectfully submits that Claim 2 is also in condition for allowance for the same reasons as Claim 1. In addition, applicant submits that Claim 2 is allowable for the following reasons.

Claim 2 defines a claimed combination of steps, including the combination of (1) receiving a message at said software bridge intended for said windows-based legacy user

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interface object; (2) determining whether said message should be forwarded to said new window manager; (3) in response to determining that said message should be forwarded, forwarding said message to said legacy window manager; and (4) in response to determining that said message should not be forwarded, forwarding said message to a procedure originally intended to handle said message.

The Office Action states that "London as modified teaches in response to determining that the message should not be forwarded, forwarding the message to a procedure originally intended to handle the message." Office Action at page 4. However, London does not disclose the process of when to forward a message to a new window manager. London only discloses a process of determining whether commands represented by Application Programming Interface ("API") calls are widows management related. Thus, London does not teach the claimed combination of steps as recited in Claim 2 and applicant respectfully submits that the rejection of Claim 2 is in error and requests that it be withdrawn and Claim 2 allowed for this additional reason.

B. Rejection of Claims 3-16 Under 35 U.S.C. § 103(a)

The Office Action rejected Claims 3-16 under 35 U.S.C. § 103(a) as being unpatentable over London in view of Brawn and in further view of Chun. The Office Action asserts that the combination of London, Brawn, and Chun suggest each and every element of applicant's claims. Applicant respectfully disagrees. As described in more detail below, the cited references fail to disclose or suggest certain elements of the independent and dependent claims.

1. Claim 10

Claim 10 recites the following:

> 10. A method for hosting a windows-based legacy user interface object originally intended for use in a legacy window manager in a new window manager, comprising:
>
> providing a software bridge between said legacy window manager and said windows-based legacy user interface object;

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intercepting a message at said software bridge intended for said windows-based legacy user interface object;

determining whether said message should be forwarded to said new window manager;

in response to determining that said message should be forwarded, forwarding said message to a root user interface object hosted in a window tree maintained by said new window manager;

routing said message from said root user interface object down said window tree to an adapter control associated with said windows-based legacy user interface object; and

processing said message at said adapter control.

Claim 10 was rejected based on the same arguments described previously that London in combination with Brawn teaches (1) providing a software bridge between said legacy window manager and said windows-based legacy user interface object; (2) intercepting a message at said software bridge intended for said windows-based legacy user interface object; and (3) determining whether said message should be forwarded to said new window manager. As described above with reference to Claim 1, London simply does not intercept messages intended for a windows-based legacy user interface object or forward any messages to a legacy window manager. Instead, London monitors a host machine for API calls between an application program and an application interface. API calls that are windows management related are directed to a remote machine so that the graphical output of the host machine may be reproduced. Also, as described above, Brawn does not disclose hosting a windows-based legacy user interface object. Accordingly, the cited references fail to teach or suggest all the elements recited in Claim 10.

The Office Action admits that London as modified by Brawn does not teach routing a message from a root user interface object down a window tree. However, the Office Action asserts that Chun teaches routing a message from the root user interface object down a window tree. The Office Action then asserts that the combination of claim elements recited in Claim 10 would have been obvious to one of ordinary skill in the art. Applicant disagrees.

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Chun is purportedly directed to a data processing system that updates display information located in a buffer. The processing system updates information located in the buffer that defines how pixels are displayed on a color buffer window. To update the display information the Chun system "occurs using a root window as the parent window and *traversing the window tree.*" Chun at Col. 5, lines 62-63. Applicant submits that traversing a window tree is not equivalent to routing a message from a root user interface object down a window tree. Also, the process of traversing a window tree in Chun does not disclose other claim elements as stated in the Office Action. For example, Chun does not disclose "routing said message from said root user interface object down said window tree ***to an adapter control associated with said windows-based legacy user interface object.***" (Emphasis added.) Applicant is unable to find any references in Chun to an adapter control associated with a windows-based legacy user interface object. Thus, Chun does not teach routing of messages as recited in Claim 10 and applicant respectfully submits that the rejection of Claim 10 is in error and requests that it be withdrawn.

For at least the above-mentioned reasons, applicant respectfully submits that the Office Action has not established a *prima facie* case for a Section 103(a) rejection of Claim 10 and respectfully requests that the rejection of Claim 10 and the claims dependent (11-14) thereon be withdrawn and these claims allowed.

2. Claims 3-9 and 11-14

Since Claims 3-9 depend from Claim 1, the analysis applied to Claim 1 also applies to these claims. Also, since Claims 11-14 depend from Claim 10, the analysis applied to Claim 10 also applies to these claims. Therefore, applicant respectfully submits that Claims 3-9 and 11-14 are in condition for allowance for the same reasons as Claims 1 and 10, respectively. In addition, applicant submits that these dependent claims are allowable for additional reasons described below.

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Dependent Claims 3-5 add to the nonobviousness of applicant's invention of "forwarding said message to a root user interface object hosted in a window tree maintained by said new window manager." As described above, the Office Action incorrectly equates a window manager with a native GUI system. However, a window manager is not equivalent to a native GUI system. Accordingly, the combination of prior art references fails to teach the additional elements recited in Claims 3-5.

Dependent Claims 6 and 11 add to the nonobviousness of applicant's invention of "forwarding said message to said procedure originally intended to handle said message from said adapter control." The Office Action asserts that London teaches forwarding a message to a procedure originally intended to handle the message from an adapter control and references Figure 3, and Col. 5, lines 38-67, of London in support of that proposition. The referenced section of London discloses a system where "translation software monitors the commands that are relayed from the application program to the application program interface provided by "WINDOWS®/NT." London at Col. 4, lines 63-67. While London monitors commands that are windows management related, it does not forward messages to a procedure originally intended to handle the messages. The translation software disclosed in London is only concerned with commands that will affect the graphical output of an application program. Accordingly, the combination of prior art references fails to teach the additional elements recited in Claims 6 and 11.

Dependent Claims 7 and 12 add to the nonobviousness of applicant's invention of "routing said message from said adapter control to a listener object attached to said adapter control." The Office Action asserts that Brawn teaches routing a message from an adapter control to a listener object and references Col. 11, lines 23-35, of Brawn to support that proposition. While Brawn discloses a recognition object that obtains data streams of characters that will be adapted for use in a new graphical user interface, it does not disclose routing of

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messages from an adapter control to an attached listener object. Accordingly, the combination of prior art references fails to teach the additional limitations recited in Claims 7 and 12.

Dependent Claims 8 and 13 add to the nonobviousness of applicant's invention--(1) determining whether said message has been completely handled; and (2) in response to determining that said message has not been completely handled, routing said message from said adapter control up said window tree maintained by said new window manager so that parent objects of said adapter control may process said message. The Office Action asserts that Chun teaches routing a message from a adapter control up a window tree. However, traversing a window tree, as disclosed in Chun, is not equivalent to routing a message from an adapter control up a window tree as recited in Claims 8 and 13. Accordingly, the combination of prior art references fails to teach the additional elements recited in Claims 8 and 13.

Dependent Claims 9 and 14 add to the nonobviousness of applicant's invention "in response to determining that said message has been completely handled, returning control to a procedure associated with said legacy user interface object." The Office Action asserts that London discloses returning control to a procedure associated with a legacy user interface object and references Figure 3, and Column 5, lines 5-39, of London in support of that proposition. However, as described above, the Office Action incorrectly equates a legacy window manager with a native GUI system. As described previously, a legacy window manager is not equivalent to a native GUI system. Accordingly, the combination of prior art references fails to teach the additional elements recited in Claims 9 and 14.

3. Claims 15-16

Since Claims 15-16 are computer apparatus and computer-readable medium having language that parallels the language of Claims 1-14, the analysis applied to Claims 1-14 also applies to these claims. Therefore, applicant respectfully submits that Claims 15-16 are in condition for allowance for the same reasons as Claims 1-14.

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CONCLUSION

In view of the remarks above, applicant respectfully submits that the present application is in condition for allowance. Reconsideration and reexamination of the application and allowance of the claims at an early date is solicited. If the Examiner has any questions or comments concerning this matter, the Examiner is invited to contact the applicant's undersigned attorney at the number below.

Respectfully submitted,

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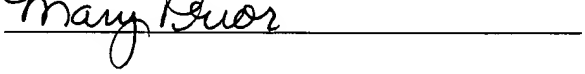
Date: June 7, 2004 

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